



PHOTOGRAPHIC
APPARATUS, PROCESSES,

&c. &c.

MURRAY & HEATH.

1860.

CONTENTS.

	PAGE
Introduction :	
Advance of Photography.....	1
Partly due to Improved Apparatus	2
This confirmed by an Article in the <i>Art Journal</i>	2
Testimonials from Lord Elgin's Mission to China, and Mr. Ellis's Mission to Madagascar	3
Appointments, &c. &c. &c.	3
Large Increase of our Business in consequence of its Practical Nature	4
The Wet-Collodion Process still pre-eminent	5
Remarks upon the Preservative Processes	5
Improved Cameras: Testimonials relating thereto	6
Double Slide for Plates Wet or Dry	7
New Portable Jointed Stand	8
Field Box, &c.	8
Lenses—the New and Old Principle Discussed	8
Smartt's Tent: its Construction Described	12
Testimonials, &c.	14
Baths and Dippers	15
Collodion. —The Collodion Committee—the object of its appointment, and the effect of its Report. The Collodion of Thomas, Hardwich, and Ponting	15
Instantaneous Pictures	19
Developers:—	
Pyrogallic Developer for Hot Weather	19
Sulphate of Iron Developer	20
Concentrated Developer—neat and very effective	21
Plan for Deferring the Fixing of Negatives	22
Mr. Shadbolt's Formula for obtaining Intensity	23
Plate and Draining Boxes, and Draining Frames, &c.	23
Preservative Processes:—	
Mr. Hardwich's Gum Process	24
Mr. Macnair's Malt Process	26
Plate Slides and Cameras for the Preservative Processes	28
H. R. H. Prince Alfred's Outfit	29
Argentometer	30
Various New Contrivances	30
Printing:—	
The Alkaline Process	31
Murray and Heath's Mode	31
Antidote to the Poisonous Effects of Cyanide of Potassium	35
Books upon and Instruction in the Practice of Photography	35
Registered Stereoscope, Stereographs, &c.	35
Conclusion	38

PHOTOGRAPHIC APPARATUS, PROCESSES,

&c. &c.

INTRODUCTION.

The following Introduction was written for our Pamphlet of last year, and as we think our interests will be served by retaining it, we have, with very slight variations, here reprinted it.

Warned by the stir among Photographers, that the commencement of another season is at hand,—that, perhaps, in a few days calm weather and sunshine will witness the active labours of many of the followers of the Art,—we beg permission to address this Pamphlet to our patrons, customers, and friends, and to all who take interest in the progress of Photography.

Our object is to invite attention to certain new forms of Apparatus, and to other Improvements and Additions we have lately introduced; selecting particularly all such as possess the merit of usefulness, and have stood the test of actual work.

We propose also to speak of other matters of interest to those who watch the advances of Photography; for, that

advances are being made, and that its applications and usefulness are daily increasing, must be admitted. A late report of the Council of the Photographic Society says—

“Happily no anniversary meeting has yet passed away without recording, as the “fruit of the year’s labour, the acquisition of some new treasure from nature’s “inexhaustible mine of wealth. Nor will this year be an exception to the “usual rule. * * * * We have to congratulate you upon progress made in many “of the routes along which Photographers are pursuing their researches.”

To improved appliances and contrivances a certain share of this progress is due. This is conceded, and in such favourable terms with respect to ourselves, in the January number of the *Art-Journal*, in an article upon Photographic Apparatus, that we may be excused for introducing here the following portion of it—

“Nothing has contributed so largely to the advancement of photography as the “skill and industry that has been bestowed upon the *apparatus* required. Without “the improved optical arrangements, and without the numerous mechanical appli- “ances which have enabled the Photographer to meet all the difficulties of his art, “sun pictures—notwithstanding the increased sensibility, and the facilities which “chemical science has secured—could not have advanced much beyond those “imperfect productions that were regarded with wonder in the infancy of the art, “but which we now reject as unworthy of places in our portfolio. In many of the “numerous notices of the progress of Photography which have, during the last “eighteen years, appeared in the *Art-Journal*, we have constantly insisted upon the “importance of avoiding the cost, too frequently devoted to the ornamentation of “instruments, and to expend liberally to secure the best possible appliances in the “least possible space.”

“Many of those principles have been so admirably secured by Messrs. MURRAY “and HEATH, of Piccadilly, whose establishment we have lately visited, that we feel “bound to direct attention to them.”

Those of our friends who use, or know our Apparatus, are aware of the care we also bestow upon the workmanship, and upon the selection of materials. The two extracts which follow are confirmatory of this, and need from us no other remark than the expression of the gratification the possession of such testimonials gives us.

LORD ELGIN'S MISSION TO CHINA.

The following, from a letter dated Tien-tsin, July 6th 1858, relates to the Apparatus we had the privilege to supply to Lord Elgin. After referring to a series of Negative Plates, The Hon. F. Bruce, the bearer of the Tien-tsin treaty, was bringing to England, the letter continues thus :—

“I have not before had the opportunity of telling you how excellent in every respect I have found your Apparatus to be. The Camera has been subject to violent alternations of temperature and to long exposure in the blazing sun, (the thermometer is at this moment 96° in a shaded room), and a few days ago everything was not only damp, but wet; and yet all is in most perfect condition.

THE REV. W. ELLIS' WORK ON MADAGASCAR.

In this now well-known Book, at page 444, Mr. Ellis writes :—

“It is perhaps but just in connexion with this subject, to state that my Camera—which was large, capable of taking a picture 16-inches square—and the other Apparatus worked well the whole time, and seemed scarcely affected either by the intense and dry heat of the capital, or the saturating moisture after the heavy rains on the coast. The Camera was of mahogany, and light, and stood much better than Cameras of walnut, which I had taken out on my former visits. The Apparatus was all made by Messrs. MURRAY and HEATH, of Piccadilly.

That our efforts to produce superior Apparatus, “the best possible appliances,” and good workmanship, have received the appreciation we hoped for, is evidenced by the fact of our being the manufacturers to Her Majesty the Queen, and the Government Departments, including the Foreign Office, the Council of India, the Board of Ordnance, the Admiralty, the Board of Trade, and the Artillery Institution, Woolwich; Lord Elgin's Mission to China; Dr. Livingstone's Expedition to Africa; the Siamese Embassy; Sir Henry Rawlinson's Mission to Persia; and to the most distinguished Photographers both professional and amateur.

That this result is partly due to certain advantages of position we have enjoyed we very gratefully admit, not the least of which is our

early connexion with the chief discoverers of the Photographic processes: our position and knowledge, as the actual manufacturers of the highest class of scientific instruments, is also an advantage of some consequence over those who are merely the sellers of Photographic Apparatus; and as manufacturers, we reap the benefit which arises from having constantly to carry out the schemes and experimental Apparatus of others.

It remains now for us, before passing to the object we have mainly in view, to offer our best thanks and acknowledgments to all our patrons and friends, and to all who have conveyed to us so many gratifying expressions of approval. We do this sincerely and gratefully, and without reserve, for we feel we have given and intend to give satisfaction;—our anxious desire being to retain the good opinion formed of us, and to merit that, which at all times, we beg our friends to be good enough to bear in mind is of the utmost service and value to us,—*their recommendation*.

As we shall seek to obtain for this letter as extended a circulation as possible, and as we propose to issue from time to time a description of New Apparatus and Processes in the manner which here follows, a considerable portion of the foregoing has been written for the information of those who do not know us, and as introductory to the purpose here named.

SEASON, 1860.

We may be here allowed to add, referring to the last paragraph but one of the foregoing Introduction, that it is extremely satisfactory to us to note the large and important increase to our business of the last year; not only are our customers far more numerous, but their ranks are being constantly increased by the addition of those who

have learnt by experience that success in Photography, as in any other science, is allied with the efficiency and good qualities of its apparatus and appliances, and that the real designers and manufacturers are naturally much more to be relied upon, than those, who have made the sale of such apparatus merely an adjunct to their ordinary business.

With this acknowledgment we proceed.

In the Report of the Council of the Photographic Society previously mentioned, occur these words :—

“In the production of negative pictures the old wet-collodion process still maintains its pre-eminence. It appears, indeed, to have been but little improved in the theory of its working, but to have become more certain in its results, partly through the increasing care bestowed upon the preparation of materials, and partly through the growing experience of its followers.”

This pre-eminence is, we believe, generally admitted—at all events improvements and experiments now in course of progress in any of the rival processes, will hardly influence the preparations already made for working the wet process during the coming season.

And here, in speaking of these rival processes, let us address a few words to those who commence with any one of them, their practice and experience of Photography. It can easily be understood that there is a certain charm in being able to obtain the results which such processes afford; it would, however, be very desirable that the operator should compare these results with a really fine negative by the wet process. We say this, because we know from daily experience, that a very large number of those who practice and delight in Photography, are unacquainted with the qualities of a fine negative.

Granting that the comparison here indicated is made, and it is discovered that the negatives by any one of the new processes, are deficient in qualities they ought to possess,—and if the utmost efforts

and care of the operator fail in producing them,—then it must be admitted that his process, although a new one, is inferior to the old, and to the extent of the deficiency, is a step in the wrong direction.

Not the least disparagement is implied or intended of any of the new processes, many of which are, at this moment, being carefully experimented with at the hands of their discoverers and advocates, and may yet, in all respects, rival the old and more inconvenient method.

We submit, however, that comparisons made at this present time, prove that first-rate results, as a rule, are largely in favour of the wet process; one fact alone is sufficiently confirmatory of this, viz.—the great excess of wet collodion pictures in all the exhibitions. No doubt most excellent results, and beautiful negatives, have been produced by some of the new processes, but it appears that these have generally come from the hands of extremely careful manipulators—such, for instance, as Mr. Llewelyn, Mr. Rosling, Mr. Fothergill, and a few others.

Admitting, therefore, the pre-eminence of the wet process, our aim has been to improve, and render as portable as possible, the whole of the apparatus required for it, both in the field and elsewhere.

THE CAMERA.

This we have made in two ways, viz:—*Rigid*, with folding bottom board, the interior fitted with a Box for Lens, Chemicals, &c.,—the Admiralty Pattern:—and *Portable*, having a bellows body upon the accordion principle, and most carefully contrived arrangements to insure firmness and rigidity. This Portable Camera is very much approved, and is admitted to be all that is required. It should be explained that in most instances our Cameras are *square*, having

carriers the size of the usual plates ; thus the operator obtains the advantage of taking his picture with its *greatest length*, either in a vertical or horizontal direction, without altering the position of the Camera.

An experience of eighteen months has completely confirmed the opinions we originally held with regard to this Camera. Besides being firm, rigid, and portable, it has both a long and a very short range, and in this respect is therefore superior to the usual folding Camera, or the Camera with the folding cone in front. So satisfied are we with its results, that we are making Cameras upon this plan for the largest sized plates ; and the following extracts from letters of a very distinguished amateur, refer to one of these Cameras made for 18 by 16 plates, and with which he took the two negatives mentioned under the head of Lenses.

"April 25th, 1860."

"The Camera I like so far very much, and if—as I apprehend it will—"it pleases me as well the next time I use it, I shall be most happy for you to "give my opinion to any one as one of extreme approval."

"April 27th, 1860."

"The Camera is very excellent, nothing can be finer ; it works charmingly, "and shows itself in workmanship and arrangements worthy of your reputation. "To you, I suppose, an amateur's opinion is of little real moment ; still, if it be in "any way desirable to you, I would most willingly authorize your using my name "for the purpose of stating my complete satisfaction with the two Cameras and the "Tent you have supplied to me. They all work thoroughly well."

NEW DOUBLE SLIDE FOR PLATES WET OR DRY.

We have designed chiefly for use with dry plates, but serviceable for either wet or dry, a double plate slide, which occupies little or no more space than the ordinary single holder. This we merely mention here because it can be applied to either process, but we shall refer to it more fully under the head of Dry and Preserved Plate Cameras.

NEW PORTABLE JOINTED STAND.

In this Stand, the objections made to the Jointed Stands have been entirely obviated; it possesses likewise the recommendations of being light and strong, and (when in use) perfectly firm and rigid.

FIELD BOX,

Contrived for Plates, Chemicals, &c., actually required for Out-Door Work.

The object of our system is to reduce very materially the weight and bulk of the appliances required; for field and out-door work, we always arrange the Camera and Field Boxes as separate packages. Our new Field Box we particularly invite attention to, on account of its convenience and portability; it is arranged for plates of one, two, or three sizes; the plate-grooves—made of gutta-percha—are of a form which cannot injure the wet film; India-rubber cushions are placed above and below the plates, and a draining tray underneath them.

The other fittings of the box are for Chemicals, Bottles, &c., and these are contrived in such a manner as greatly to economise space, and yet most fully to answer the purpose.

LENSES.

In our pamphlet of last year, the following remarks were made:—

“The past year has been most prolific in the production of new forms and combinations of Lenses, among which rank as the most important, the Petzval, the Orthoscopic of Voigtlander, the Orthographic of Ross, and the Grubb. At this moment we submit that it is too early to speak of the positive advantages of any of the above, either over each other, or over certain of the old forms. Carefully conducted experiments justify us, however, in saying, that those who possess *really good* Lenses by any manufacturer, should for the present remain satisfied with them.”

The experience obtained since this was written, appears fully to justify the opinion we then gave. When the new form of Lens was introduced, numbers of photographers were substituting them for the old form of single Lens; our advice to those whose Lenses we knew were good, was to pause; and we believe that it is now generally admitted, that for landscape photography, and for general purposes out of doors, the Orthoscopic Lenses of all kinds are inferior to the single Lens. The consequence is, that many of those who were so eager to part with their old friends for the new, are now just as eager to obtain them back again. Let us here be in no way misunderstood. That the Orthoscopic Lenses have peculiar advantages there can be no question; but as they do not possess what is understood as "depth of focus," they are only suited for subjects more or less on one plane. Used for subjects for which they are suitable, the result is very satisfactory; they are very free from distortion, and their definition is most excellent. As a case in point, we may mention that we possess a negative taken with a Ross Orthographic, of which the subject is a cottage porch, with creepers and foliage around it. It would not be possible for anything to be more beautiful than this—every portion of the picture is all that can be wished for. Upon the same day this negative was taken, the Camera was moved a few yards further off—the object being to include in a second negative a bed of various plants then in full bloom;—the distance from the porch to the centre of this bed is ten yards, so that to include the bed, this was, as nearly as can be now measured, the distance it was necessary to move the Camera. The flower bed was the point focussed, and most wonderful was the definition of every petal and leaf rendered in the negative, but the *porch was quite out of focus*. Now, this very subject having every portion fairly in focus, has been done over and over again with a Ross Single Lens.

We have also been lately making some careful experiments with the Orthoscopic Lens of Voigtlander, and by these it resulted that although remarkably fine in the best qualities of this kind of Lens, like its compeer above, it was inferior to the Single Lens in depth of focus. It should, however, not be overlooked, that in the hands of amateurs, and those who take portraits in the open air, these Orthoscopic Lenses are of great value. For groups, and even single portraits, they are then superior to the ordinary portrait or double Lens,—and for this purpose, they always have our best recommendation. We have a negative taken with the Ross Orthographic, which no portrait Lens could have produced; there is a total absence of distortion—the whole figure is in focus, and the back and foreground nearly equally so,—of course these being within the power of the Lens. For the purpose of copying prints and pictures, they also answer admirably.

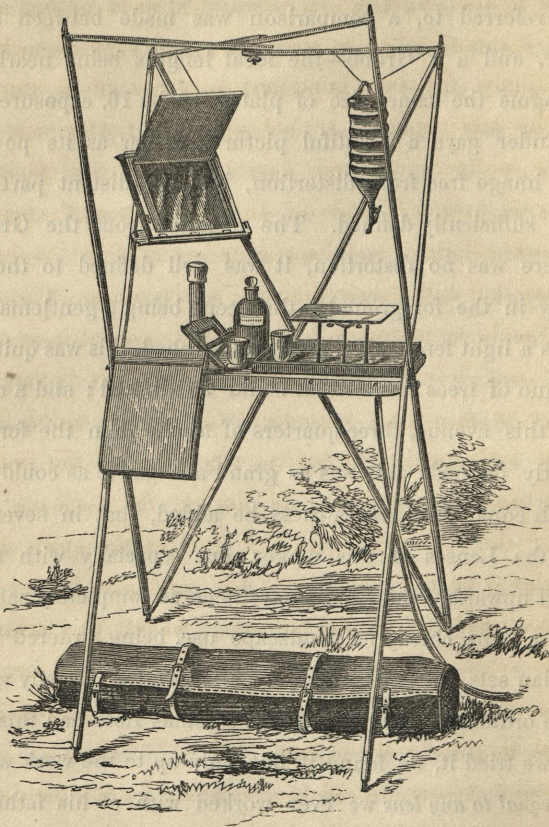
It seems, therefore, that at this moment we stand in this position as to Lenses:—1st. The portrait combination as usually used in the glass house of the professional photographer, is, as it was last year, unaltered in principle or form; and purchasers will in their selection, be governed either by the recommendation of others, or by their knowledge of the reputation of the different makers, the Voigtlander and Ross still taking first rank. With regard to the first of these, we may remark that it is stated “that in consequence of the alteration in the import duty they can be purchased at prices hitherto unattainable.” 2nd. The Orthoscopic Lenses are adapted for the purposes indicated above, viz., foliage, &c., if near, groups, and copying. 3rd. The true Landscape Lens is still the Lens known as the Single Lens; and here again purchasers when ordering Lenses of us will apply the rule for selection mentioned with regard to Portrait Lenses. It may be advisable to refer to two instances which

have very lately come under our own notice:—1st. In the experiments previously referred to, a comparison was made between a No. 3, Voigtlander, and a F Grubb—the focal lengths being nearly equal, the diaphragms the same, size of plates 18 by 16, exposure equal—the Voigtlander gave a beautiful picture, as far as its power permitted, the image free from distortion, but the distant parts of the picture not sufficiently defined. The negative from the Grubb was perfect, there was no distortion, it was well defined to the edges; immediately in the foreground,—the scene being a gentleman's park,—there was a light fence with wire net attached, this was quite sharp; a long avenue of trees was all that could be desired; and a church at the end of this avenue, three-quarters of a mile from the foreground, was perfectly defined: this was as grand a negative as could be seen. It may, with equal truth and fairness be added, that in several trials made with the Lenses of this maker, but especially with those for 10 by 8 and upwards—the results have been as completely satisfactory.

2nd. A Ross Lens, chiefly for landscape use, being ordered with one of our Indian sets, we determined, for the reasons already explained, to send the ordinary Single Lens. Mr. Thomas Ross had this to make, and when we tried it, we found it not only up to the work we wanted it for, but *equal to any lens* we ever worked with of his father's; this must be considered very satisfactory, for science can ill afford to lose men so eminent and practical as the late Andrew Ross.



SMARTT'S PHOTOGRAPHIC TENT.



IN this Tent, an endeavour has been made to obviate the inconveniences complained of in contrivances of this sort, especially as to working space, firmness, simplicity, and portability. Usually, in the various forms of Tent in use, the upper part, where space is most required, is the most contracted; while at the lower part, where it is of little importance, a great amount of room is provided.

Smartt's Tent is rectangular in form, is 6 feet high in the clear, and 3 feet square, affording table space equal to 36 inches by 18 inches, and ample room for the operator to manipulate with perfect

ease and convenience. The chief feature in its construction is the peculiarity of its framework, which constitutes, when erected, a system of triangles, disposed so as to strengthen and support each other: it thus combines the two important qualities of lightness and rigidity. The table is made to fold up when not in use, and in place of the ordinary dish for developing, a very efficient and portable tray is provided, made of Indian-rubber cloth, having its two *sides* fixed and rigid, and its two ends moveable; it thus folds up into a space but little larger than one of its sides. The working space of the table is economized thus:—A portion of it is occupied by the tray just described—the silver bath, which is one of our new glass baths with glass water-tight top, is suspended from the *front* of the table, and rests upon a portion of the frame work of the tent, and a contrivance is devised for disposing of the plate-slide of the Camera, in order to reserve the space it would require if placed on the table. The bath and plate-holder in their places as described are shown in the wood-cut, this arrangement leaves ample space on the table for manipulating the largest-sized plates. The entire weight of the Tent is 20lbs., and it is easily erected or taken down by one person.

The Collodion pourer, the plate developing holder, the developing cups, and the water bottle (the latter is suspended over the tray as in the wood-cut), have all special points in construction.

The object of the Inventor has been completely realized, the operator being insured the means of working the wet collodion process in the open air with ease, comfort, and convenience. Hitherto this has not been possible, in consequence of the great weight and bulk of the contrivance used, and to which may be traced the existence of the many expedients for retaining, more or less, the sensitiveness of the prepared plate.

More than one hundred and thirty of these Tents have been sold since their introduction last year; they have formed a portion of all our important sets of apparatus, and among the professional Photographers, have been made for Mr. Fenton, Mr. Bedford, and Mr. Lovell Reeve. The experience we have derived from their manufacture has originated various minor improvements and alterations,—and altogether we believe we are justified in saying that this Tent is the most serviceable and best constructed in use.

Mr. Bedford says in one of his letters:—

“The other day I was at Lichfield taking views, with one of your Smartt's Tents, and I was quite charmed to find how delightfully I could work in it—plenty of room, plenty of light, and what is more, ventilation, too. The Table and indian-rubber tray are very convenient; the arrangement with regard to the nitrate bath, very good; and there seems to be a place for every thing you require.”

And Messrs. Taylor and Lovell Reeve in speaking of their recent tour in Brittany, say:—

“We were much pleased with Smartt's Tent; it is very convenient and portable, and we should certainly use it in any future excursions of the kind.”

The Rev. T. M. Raven, who read a paper at a meeting of the Photographic Society of Scotland, on the 10th April, said:—

“For a few days last summer I tried wet Collodion and used one of Smartt's tents, purchased from Messrs. Murray and Heath. No tent, I think, can be better adapted for out-of-door work than this most excellent one. It is easily put up, and as soon and as easily taken down; in fact, it is so thoroughly complete with every convenience that no improvement can, I think, be made upon it.”

Referring to the minor improvements and alterations mentioned above, it may be here stated that Mr. Vernon Heath explained these at the January Meeting of the London Photographic Society, and that his explanation was concluded thus:—

“This, then, is Smartt's Tent in its present state; and I may remark that having had considerable experience in its use, I consider it very successful,

"indeed I believe it merely just to say that Mr. Smartt has the honour of having designed the most useful and effective tent yet made. This is so constantly confirmed by the letters of those who have them in use, that I do not hesitate to speak of its merits in the terms I have.

"I will ask, in conclusion, permission to mention a circumstance which, on the one hand, is confirmatory of the merits of the tent, and, on the other, is personally very gratifying to myself:—Messrs. Negretti and Zambra some months ago sent out, with their photographer, one of these tents to China and Japan; and only last night (this gentleman desiring to extend his operations) they sent off a second one. Now I argue that this, coming as it does from a house manufacturing so extensively their own apparatus and contrivances, is as high a testimony in its favour as can be desired."

BATHS AND DIPPERS.

The question which has arisen as to the action of the Nitrate Solution on Gutta Percha, or rather upon the impure preparation of it sometimes used for Baths, has led us to adopt, in nearly all instances, the use of Glass; both the *Bath and tight cover* being made of this material, protected by a mahogany case. It need not be remarked that the mode of fitting these Baths, which are not only quite water-tight, but answer perfectly, is one in which the utmost accuracy is required at the hands of the maker.

We have also designed a *new Clip* for these Baths, which can be at once secured to, or removed from its place, without the sliding or pulling motion required when using the usual Clip. The advantage of this will be apparent at a glance.

COLLODION.

We approach this heading with some hesitation, for we feel that in consequence of occurrences which have lately taken place, we are now treading upon delicate ground; nevertheless, if the object of our pamphlet is to be fulfilled, it is our duty to speak as fearlessly, though as impartially and fairly, upon this question as upon Lenses, or any other subject.

In the session of last year, Mr. Hardwich, one of the best of our manufacturers, requested the Council of the London Photographic Society to nominate a Committee to investigate the merits of his Collodion, but as there was a technical obstacle to carrying out this request in its integrity, the Council met it by resolving—"That a Committee of the Society be appointed to examine and report on the various formulæ for making Collodion; and that Members of the Society and makers of Collodion be invited to send in samples, such samples to be accompanied, *unconditionally, by a full statement* of the manner of its manufacture." At the meeting of the Society before which this Resolution was laid, the Chairman stated that it was *one of the Conditions of the Constitution of the Committee*, that it should take a broader basis of operations than that proposed by Mr. Hardwich, and upon this representation it was agreed to appoint the Committee.

Here then is the object for which the Committee was appointed,—viz: the investigation of the Collodion and formulæ of different manufacturers; and consequently, no accident or arrangement of circumstances, ought to have been able to vary this object without the consent of a meeting of the Society. That is, assuming Mr. Hardwich's Collodion and formulæ to be the only one sent in, the Committee, by undertaking its investigation, would so far vary the functions of its appointment, that in effect it would constitute itself the very Committee Mr. Hardwich sought for in the first place. Now this is precisely what happened. It would, no doubt, be beneficial to the Photographic Art, if a Committee of competent persons had means by which to conduct the investigation the Council and the Society proposed, but it was not the least likely that commercial manufacturers—especially those who had great reputation for their preparations of Collodion—would come forward and comply with the terms of unconditionally publishing a full statement of the manner of its manufacture. Conse-

quently, the Committee had practically only Mr. Hardwich's Collodion before it, and as the Council had already determined that there existed an obstacle to the investigation of this alone, the Committee, before entering upon its labours, should have obtained the opinion and advice of the Society; at all events, no report should have been made, without reference to the Society in the first place. However, early in the present year, the Committee presented a report, which subsequently, without either approval or adoption, was printed in the Journal of the Society, and in the other Photographic Papers; and the subject has either been discussed or mentioned at every Meeting of the Society held since. Now of the merits of Mr. Hardwich's Collodion there can be no question, and these were established long before the existence of the Committee; but inasmuch as this report uses comparative terms—expressions in the comparative degree—when it is admitted no comparison has been made; inasmuch as the stamp of the full approbation of the Society “is asked for this Collodion because of its unsurpassed excellence;” and inasmuch as the report has been pointed to as proof of its superiority, it has been deemed consistent with the object with which this pamphlet is annually issued, to discuss, in the manner we have here, the origin of the Committee, and to point to the following effect of its Report. There can be no doubt, by reason of the publication of this Report, that any one not conversant with the whole question would at once determine that Mr. Hardwich's Collodion was superior to that of any other maker; but not only is this superiority not proved, but it is not the fact, as there are really several manufacturers both in London and the Provinces, whose Collodions compete most successfully with that of Mr. Hardwich. Thus the Report, by the sort of preferential authority it seeks to obtain for Mr. Hardwich's preparations, does injustice to other makers, and this really

arises in consequence of their thinking it not consistent with their interests to publish their own mode of manufacture.

Now, without intending the least disparagement to the Collodion of any other maker, we think we may venture to say that the three Collodions which are certainly equal to any in use, are those of Thomas, Hardwich, and Ponting—for whom we are the appointed agents—and the frequent testimony we receive of the excellence of each of these preparations, justifies us in thinking that it would be unfair, and probably invidious to claim for any one of them superiority. Each possesses individual merits, and has its particular friends and supporters, and the Collodion Committee will pardon us if we assert that upon this point we have a vastly more extended experience than themselves. We could quote hundreds of opinions from persons entitled to be heard and considered, but it will suffice for our present object if we mention that Mr. Thomas, who has been so long noted as a manufacturer, says he has produced a Collodion which is “superior in quality, and uniform in composition,” and which “will take precedence” of his well-known preparation of “Xylo Iodide.” He has prepared also, a Collodion iodized with Cadmium, having uniformity of sensitiveness, and undergoing very little alteration of its properties; and we have also seen some very brilliant negatives taken with a Collodion he has made, iodized with Magnesium. With regard to the Collodion of Mr. Hardwich, it should be stated that for the negative, of which we speak so highly under the head of Lenses, as taken with a Grubb Lens, this Collodion was used, and a finer, clearer, and cleaner negative could not be seen; it will be remembered also that Mr. Delamotte’s large picture of the Crystal Palace, which is remarkable for the delicacy of its half-tone, and for other fine qualities, was likewise obtained with

this Collodion. Finally, Mr. Ponting's Collodion retains the high character it has earned, in consequence of its uniform action, and its quality of sustaining a high degree of sensitiveness a very considerable time, two or three years scarcely affecting it in this respect. To Amateurs, and those who only work occasionally, these are advantages of the greatest consequence.

INSTANTANEOUS PICTURES.

We have contrived, in place of the ordinary cap of the Lens, a *quick shutter*, which is both simple and effective. It can be adapted to any Lens, and by merely altering its position, the time of exposure of the picture can be varied. It was made for, and used by, Mr. Lake Price, for his instantaneous pictures, long before some other contrivances that are now advertised to accomplish the same object.

DEVELOPERS.

An approach to the order in which the various processes occur in actual practice, has been attempted in the arrangement of these headings ; here, therefore, is the proper place to speak of Developers. Many operators still prefer pyrogallic acid, and in hot weather, especially if working in a tent, *pyrogallic with citric acid* is extremely useful. Mr. Hardwich gives the following formula for this solution :—

Pyrogallic Acid	1½ grains.
Citric Acid	¾ grain.
Alcohol	20 minims.
Water	1 ounce.

and in speaking of the *ordinary* pyrogallic developer in his "Photographic Chemistry," he says, "that when working at high temperatures "it acts so quickly, that it is impossible to cover the plate before the "reduction begins." The pyrogallic and citric developer will, however

flow evenly over the film, and the image will not appear until after an interval of twenty or thirty seconds ; it has also a marked effect in preventing red solarization in a brilliant light, and in preserving the surface of the film from fogging.

Mr. Hardwich adds, "on the other hand, it is not suited for working in a glass house in a bad light and cold weather, nor for copying works of art with long focus lenses, or for taking interiors." We mention this to prevent disappointment ; it will, however, be seen that we are here addressing ourselves principally to the question of "*out-door Photography*," for which, for the reasons previously stated, this developer will be found very serviceable.

Sulphate of Iron as a developer is very generally and very deservedly coming into use. Of this agent, Mr. Hardwich says, "it will bring out a perfect picture, when, from some opposing conditions, the ordinary developer proves ineffectual." He gives for this solution, the following formula :—

Sulphate of Iron	.. .. .	15 grains.
Glacial Acetic Acid	.. .. .	30 minims.
Distilled Water	.. .. .	1 ounce.

and he adds, "that in mild weather the proportion of the Iron Salt may be reduced to ten or twelve grains," and that "sometimes six grains of Crystallized Acetate of Soda are added to increase the intensity."

The formula we have generally used is :—

Sulphate of Iron	... ..	10 grains.
(which in hot weather reduce to 8.)		
Glacial Acetic Acid	.. .. .	10 minims.
Alcohol	.. .. .	20 minims.
Distilled Water	.. .. .	1 ounce.

It may be stated, that, with the Collodions of certain makers, Pyro-gallic has answered better in our hands than Sulphate of Iron ; with

Ponting's, for instance, we think Pyrogallic not only *best*, but that all that can be accomplished by the use of Iron with particular Collodions, with it can be attained with Pyrogallic.

An extremely neat, and we think perfect and desirable mode of developing, is that which has been adopted by a Gentleman, who has been good enough to communicate it to us. His Pyrogallic Developer is this :—

$\frac{1}{2}$	drachm	Pyrogallic Acid.
4	„	Glacial Acetic Acid.
4	„	Distilled Water.

This concentrated Developer, if prepared with really pure chemicals, will keep a reasonable time—say, even in hot weather, three or four weeks—it should be explained, however, that the ordinary Acetic Acid of commerce is not sufficiently pure for this purpose.

The solution, made as above, is to be used thus :—Pour into a thoroughly clean developing cup, just enough distilled water to cover the plate (say a 10 by 8), and pour this on and off the negative two or three times: the free Nitrate of Silver of the plate is thus added to the water. Now add to it about four drops of the Pyrogallic solution, and with this commence the development, and, as becomes necessary, pour off the developer and strengthen it with a few drops of the solution, and do this until the image is sufficiently intense. There are really very many advantages attached to this plan, the chief of which are :—the developer does not quickly discolour; there is an absence of stains by its use; in hot weather the development is sufficiently retarded, and yet means are at hand by which any amount of strength in the developer can be commanded.

It should be mentioned also that instantaneous and short-exposed Negatives, as well as those of interiors of rooms, which very many operators, using the ordinary means of developing, would throw aside

as failures, can be completely developed by adopting a weak solution and allowing the reduction to be very gradual. This, in fact, is the secret of the development of this class of Negatives.

Those who adopt the Iron developer will find that, when working in high temperatures, it will be much to their advantage to prepare a strong solution, and use it in the manner previously described ; but in this case more than is required for a day's use should not be made : for instance, suppose 20 oz. to be the quantity required, prepare it thus—

3 drachms Sulphate of Iron.

3 drachms Glacial Acetic Acid.

1 oz. Distilled Water.

PLAN FOR DEFERRING THE FIXING OF NEGATIVES.

If the fixing of a Negative could be done some hours after it is taken, the Negative thereby suffering no injury, and the result, in all respects, being equal to fixing on the spot, a great advantage would be gained. The number of processes in the field would be reduced, time economized, and Negatives be not liable to injury from insufficient washing: the space required for, and the weight of the fixing solutions would be saved, and a very small quantity of water would be ample for a day's work. To accomplish this, a means is required for preventing the film from drying. The use of deliquescent salts might do this; honey, or oxymel, thinned with water certainly would, but the plan which appears to be the best is this:

Have a Plate Box for Negatives, similar to that hereafter described, and after the application of any of the developers previously mentioned, and the usual washing—a small quantity of water being sufficient for this—coat the Negative with *Glycerine and water* mixed in equal proportions, (pouring off the excess in the ordinary way,) and put it care.

fully into the Plate Box. It can then be fixed after returning home, the next day, or indeed within any reasonable time; all that is required is, in the first place, to wash off the Glycerine, and this it will be found can be done very readily.

Nor is it necessary to obtain by development in the field, the whole intensity the Negative is capable of giving. Generally, in using the iron salts, sufficient is accomplished if all the required details of the picture appear; any degree of intensity can be got by using the formula given below, which was published by Mr. Shadbolt, in the *Liverpool Photographic Journal*—

“Fix with Hyposulphite of Soda, wash well with common water, drain slightly, and then wash with a few ounces of distilled water, again drain, and pour on a solution in the proportions of—

Pyrogallie Acid	2 grains,
Citric Acid	1 grain,
Distilled Water	1 ounce,

to which add about 20 drops of pure solution of Nitrate of Silver (about 30 grains to the ounce) but not that previously used for baths or any other purpose. Finally wash well: no more fixing will be required.”

PLATE AND DRAINING BOXES, DRAINING FRAMES, &c.

The arrangement for glass plates of the division of the Field-Box, as described under that head, so far as it relates to Gutta-percha grooves, and Indian-rubber cushions, is carried out in our Boxes for Plates of all sizes; these will be found to be a great improvement. The plate box mentioned in the last heading, has, in addition to these improvements, a prepared and hinged bottom for *drainage*, by which it is rendered suitable for the reception of undried negatives.

We also introduced the *metal-plate boxes* with metal grooves; they are very portable, (the space required for a dozen plates being no greater

than that occupied by six in the ordinary boxes,) and are chiefly used for prepared plates for any of the dry processes, as they are quite light-tight.

The *draining frame* is a convenient and portable form of rack for plates when cleaning; and is admitted to be one of the most useful of the minor Photographic contrivances.

PRESERVATIVE PROCESSES.

At the date of our pamphlet of last season, it appeared that the Preservative Processes most generally in use were the Taupenot, the Oxymel, and the Fothergill; and although these, more or less, still hold their ground, experiments are now in the course of progress with two other processes, from which the most satisfactory results are expected to be accomplished. The first of these is described by Mr. Hardwich in the January number of the Photographic Journal, at page 139, and from which the following is taken:—

“First, prepare the following solutions:—No. 1. Gelatine, 2 grains; water, 6 drachms; methylated alcohol, 2 drachms; dissolve and filter. No. 2. Common salt, 5 grains; water, 1 ounce; no filtering needed. No. 3. Best gum arabic, 30 grains; gallic acid, 1 grain; distilled water, 1 ounce; powder the gum finely in a mortar, and rub it up with the water until entirely dissolved. Filter through blotting paper.

“(N.B. This liquid is not well calculated for keeping.)

“Begin by cleaning several glasses, and applying to the face of each the solution No. 1, made warm by standing the bottle containing it in hot water. It may be poured on like collodion, and the glasses afterwards reared up to drain. If any of the gelatine should touch the back, wipe it away with a cloth, to prevent contamination of the nitrate bath.

“Coat the dried plates with the collodion in the usual way, leaving



them the full time in the bath (four minutes), in order to obtain the maximum of creaminess. Wash copiously with common pump-water under a tap, or with two changes of water in a dish. Next remove a further portion of the nitrate of silver by means of the salt solution (No. 2), which may be kept in a stock bottle, and poured *quickly* over the film twice (in the same manner as collodion), allowing the excess to flow off into the sink. Afterwards the salt must be removed by a second washing with common water, and the preservative solution (No. 3), of which I use a fresh portion for each plate, may then be applied until uniformly distributed. Dry spontaneously, or by a moderate heat.

“The essential feature in this process is the *gum*, which appears to me, at present, to act better than gelatine. It is quite possible to work on glasses not previously coated with gelatine, but in so doing there will be danger of losing some pictures by blisters.

“As far as I can judge, this process is equal to Fothergill's in sensitiveness, and much more rapid in development. The image is brought out with the usual pyrogallic acid mixture, such as we employ for wet collodion.”

On the 18th of April last, Mr. Rosling, who is so noted for his preserved plate negatives, writes to us.—“I have not had much experience in this process, as I have only worked with the materials furnished me by Mr. Hardwich, but I have obtained two or three as fine negatives as I have ever produced; and so far as I can at present judge, my success resulted more from the quality of the Collodion, which I believe he made expressly for this purpose, than from the process itself.”

Mr. Hardwich, writing to us a few days since upon the subject, says:—“The only thing I wish to add is, that the Collodion for the gum process is made exactly as described in the Journal of two

months back, iodized with the Bromo-iodide solution there given, and kept, if possible, a month or more in the iodized state. My pupils here succeed better with this gum process by far than with Fothergill's process. Always wash with salt, and use gallic acid in the gum."

From a number of other sources, we also hear reports of an extremely satisfactory nature.

But the process which seems to give still better results is that mentioned at the 10th of January Meeting, of the Photographic Society of Scotland, as that of Mr. Macnair. This is, in brief, the coating of an excited and washed Collodion Plate, with an infusion of well-bruised or ground Malt, which is then to be dried by the application of heat, and after exposure the Plate is developed by Sulphate of Iron, the Preservative Solution having been previously removed by washing, and the Plate wetted over with a solution of Nitrate of Silver. Referring to this, Mr. Hardwich, in letters of the 20th and 21st inst., says, "Mr. Rosling was in my Laboratory a few days since, and tells me he has tried a process far superior to the gum process, viz., an infusion of malt. I have tried the 'malt' process again, and this time with better success; it is certainly very simple. If you wish to give a process easy and popular, I think it would be worth your while to try this one."

We are enabled, by the courtesy of Mr. Macnair, who writes to us as late as yesterday, to mention here the experiences of himself and friends, among whom are some of the best amateur photographers in Scotland. It has resulted from experiments, that the infusion of Malt as described in the Journals is needlessly strong. Mr. Macnair writes—"Three or four ounces of malt (instead of seven) to twenty ounces of water will be quite strong enough, and it has also the advantage of being easily washed off." For larger or smaller quantities, of course the malt and water will be used in like proportions

to the above. Mr. Macnair adds—"An objection to this process has been made, because the infusion of Malt does not keep longer than a few days, but I do not think that is of any consequence, as it can be made at any time in small quantities, about as easily as a cup of coffee." The easiest way to make the infusion, is to pour the water when nearly boiling into a common earthenware tea-pot, and mix in the ground Malt when the heat has fallen to 180° ; then place the tea-pot before a moderate fire, from which it should be removed, and the infusion allowed to cool slowly, as soon as it has acquired a *slightly sweetish* taste; if allowed to become *too sweet*, it does not dry hard and firm on the Collodion film, but keeps sticky, and applying heat makes it more moist.

The Plates, which should be particularly well cleaned, and care taken to avoid dust, are to be coated and sensitized in the ordinary way, and the free Nitrate of Silver washed off at a tap, or with a jug, finishing with distilled water. The free Nitrate will have been got rid of, when the greasy appearance which the Plate has when the water is first applied is entirely removed; the plate will then be sufficiently washed. Rest the Plate for a few seconds on blotting paper, and before it begins to dry, pour over the Malt infusion the same way as Collodion; wipe the back of the Plate, and then dry (the quicker the better); this may be done by placing the Plates in a box before a fire, ranging them in a slanting position, with the end from which the Collodion and Preservative coating were poured, uppermost, and the coated side inwards. A large earthenware bottle filled with hot water placed in the box will greatly accelerate the drying. It is a good precaution, particularly for beginners, to touch the edges of the Plate with varnish, applied with a small camel hair brush, after the coating is quite hard and dry: this lessens the risk of the Collodion film breaking away while the Preservative is being washed off.

The time of exposure for taking views may be reckoned the same as wet Collodion.

After exposure, wash off very thoroughly the Preservative coating, letting the water flow from the centre of the Plate towards the edges ; then, using a Plate-holder, dip the *face* of the Plate in a solution of Nitrate of Silver, of the strength of 10 to 15 grains to the ounce of water. Develope with the strong solution of Sulphate of Iron, as given in the last formula in our article on Developers, and intensify, if necessary, by the solution of Pyrogallic and Citric in the manner previously described for this purpose.

The science of Malt as a Preservative Mr. Macnair some time since thus explained :—"In the course of some interesting remarks on the "changes grain underwent in the process of malting, he stated that the "Malt in a dry state contained gluten, gum, starch, and a sugary matter "which did not crystallise, and which he believed could not be crystallised without Sulphuric Acid, or by some other chemical process ; "that when an infusion of ground Malt was made at a proper temperature, a rapid conversion of the starch, as well as nearly all the "gluten and gum, took place, and the whole was changed into a new "sweet matter ; that the conversion could be checked at any stage, "and that the best state for the purpose was when the infusion, when "dried upon the Plate, was *least deliquescent*, and contained only "sufficient quantity of this grape sugar to allow it to be readily "washed off the Plate after exposure."

CAMERAS FOR THE PRESERVATIVE PROCESSES.

We believe that experience will prove, that sets of three, four, and six of our double plate slides for sensitized plates, will be found much more simple and efficient than any of the dark boxes or changing

bags in use. They are suitable for Cameras of any size, and can be used for the ordinary wet plate as well as for preserved ones. For stereoscopic plates they answer admirably; and we have arranged a Camera specially for their use. This Camera we will describe by adopting the following account of it given by Mr. Shadbolt, in No. 119 of the *Liverpool Journal*:--

"A few weeks ago, by the courtesy of Messrs. Murray and Heath, we had an opportunity of inspecting the photographic outfit, just then completed by that firm, for H.R.H. Prince Alfred, which was intended to accompany him on his maritime expeditions. The whole of the paraphernalia were arranged in the most systematic manner in several cases, but in such a manner that whatever operation may be in contemplation, all the requisites for that operation in particular are readily separable from those that are not wanted; while the packing is so managed, that no time is lost either in the operation of unpacking or of putting away again.

"Amongst the apparatus, we would particularly notice a new stereoscopic camera, which is very compact and handy, the lenses, dark slides for eight dry plates, focussing screen, &c., all being included within the camera, which, when closed, forms a rectangular box, with lock and key, without any projection whatever. As this is a matter that will interest photographers generally, we will endeavour to describe it concisely.

"When placed on the tripod for use, and unlocked, the back of the instrument opens like an old-fashioned piano-forte, so that the back and half of the top lie flat upon the remaining part of the top. The front also opens upwards, being hinged to the top, and when down, acts as a cap or shutter to both lenses at once. By the addition of an india-rubber band attached to a couple of pins, the same is applicable as a contrivance for giving a very short exposure.

"A species of open box or deep tray, containing the double and single slides and focussing glass, is lifted out of the space uncovered by opening the back part previously adverted to, the tray being capable of suspension beneath the camera, not loosely, but by means of a tongue and groove of thin metal, so that any desired slide is immediately at hand, in a convenient position. Within the front, which is hinged at top, and at about one inch distant from it, is a

second front in which the lenses are inserted; and attached to its opposite side is the working body of the camera, on the bellows principle, which closes up, when not in use, into the space not uncovered either at back or front, and when in operation is simply drawn back, and adjusted for focussing, into the space previously occupied by the tray of slides."

ARGENTOMETER.

In the article upon Printing, the common Hydrometer was stated to be sufficiently accurate for testing the strength of the silver bath; this certainly is so, although the results would be far from being chemically correct, and as a test of strength for the negative bath, such a contrivance would be useless. We have, therefore, arranged an *Argentometer* of very simple construction, which, for either bath, will determine the most accurate results. This is a serviceable addition to the apparatus of every Photographer.

VARIOUS NEW CONTRIVANCES.

AMONG THESE ARE:—

A Pneumatic Holder, of which the *Liverpool Journal* says:—

"We must not omit to mention an improved form of Pneumatic Holder, which is highly effective. We are surprised that any photographer should dispense with such a luxury as this—a luxury which not only conduces to the personal comfort of the operator, but also offers additional security against accidental stains on the plate and injury to the film."

A Collodion Pourer.

Improved Glass Dishes for Sensitizing; also **Glass Dishes** for this purpose in wood cases.

A Printing Frame for the production of Glass Positives, non-reversed.

Frames for Cleaning Glass Plates.

And a Levelling Stand for preparing Plates by the Preservative Processes.

PRINTING.

Probably, in the whole range of the Photographic Art, no greater progress has been made during the last few months than in printing. It may now, with great justification, be believed that we have a permanent and certain process at our command; and that in future, the main cause of fading photographs will be insufficient washing. The suggestions relating to the improved modes which have been adopted have emanated from several persons—Mr. Maxwell Lyte and Mr. Hardwich being among the first. The principal advantages of these processes appear to consist in the colouring bath being alkaline—the colour being produced solely by the gold, without the aid of sulphur or other deleterious agents, and the proofs being fixed in an alkaline solution of Hyposulphite of Soda, in order, also, to prevent the chance of sulphur being liberated. The operator has, likewise, control over a variety of tones, and the whites and high lights of the resulting prints are very pure.

As the processes of Mr. Maxwell Lyte and Mr. Hardwich have been published, from time to time, in the Photographic Journals, and are now thoroughly well known, we confine ourselves here to mentioning the formula we are using, and which, in our hands, and in the hands of those we have instructed, yields highly satisfactory results. And we refer to this with much confidence, because we have used it now for some time very extensively in our own business, and for prints from negatives intrusted to us by a large number of our customers, our arrangements enabling us to undertake printing, from a single, to any number of copies, upon a reasonable and uniform scale.

The chief advantage we claim for our method is, that there is scarcely any necessity to *over-print*, as the toned prints lose little or nothing of their colour in the fixing bath. This peculiarity is due

entirely to the formula by which the albuminized paper is prepared. This formula was very kindly furnished us by Mr. Heisch, and although we have not authority to publish it, we are prepared to supply to any extent paper prepared by it.

To sensitize this paper, float it for five minutes on an eighty grain to the ounce silver solution—care being taken to keep this bath neutral or very slightly acid, and the silver solution *up to the necessary strength*. For the first condition, test it, and, if required, neutralize with Carbonate of Soda; for the second, a common hydrometer will be sufficiently accurate to determine the number of grains per ounce it contains, and if this should show diminished strength, add a few crystals of Nitrate of Silver to restore it. After using the silver solution, pour it back into the stock bottle, in which should be kept an ounce or two of *Kaolin*; shake up the whole well, and in a few hours the solution will be quite bright and clear, and ready for use again. When required for use, pour off the clear solution, and filter through blotting paper.

For toning, prepare just before use, a bath of these proportions:—

Chloride of Gold	..	..	..	..	1 grain.
Bi-carbonate of Soda	..	..	..	..	15 grains.
Water, pure or distilled	..	..	..	..	10 ounces.

(It will be found convenient to dissolve the usual fifteen-grain bottle of Chloride of Gold in fifteen drachms of Distilled Water—a drachm of this solution will, therefore, contain one grain of Gold.)

The prints may be kept for a few hours after removal from the printing frame, though it is best to tone them at once; but before doing so, wash them in the dark room, or, if at night, by the light of a candle, in two or three changes of water. Be careful during the first washing not to touch them, even with the horn tongs, or anything else, or stains will be produced. Perform this washing by laying a number of them (according to size) in a large dish, pouring

the water upon them, and after soaking a few minutes, well agitate the water, and pour it off. Add then fresh water, and continue the washing till all milkiness disappears. They may then be left in the water until it is convenient to tone them, which is done thus:—

Pour the ingredients of the toning formula into a flat dish, and put the prints into it—say six at a time. This should be done in subdued light, that is, light merely sufficient to watch the effect of the toning, otherwise the high lights of the prints would suffer. Keep the prints constantly moving—turning them over occasionally to note the change going on. If they are moved from the toning bath as soon as the blue colour of the gold is seen, they will generally be, when fixed, a dry and warm hue of brown; but, if left for two or three minutes longer, a much deeper tone is acquired; the former is suitable for landscapes, and the latter for copies of pictures and engravings: a medium tone is probably the best for portraits. Should it turn out that the prints are weak, and have a cold and flat appearance and colour, rely upon it that the sensitizing bath is below the required strength. After toning, the prints should be well washed with water, and they are then ready for fixing—up to which point it should be remembered they should be carefully protected against the action of strong, or even good, light. Here it may be mentioned, in order to judge what quantity of the toning solution is needed, that our experience gives this result, viz.—that double the proportions given in the foregoing formula will tone about fifteen 10 by 8 prints.

The bath for fixing is of these proportions:—

Hyposulphite of Soda	.. .. .	1 ounce.
Water (Common)	.. .. .	6 "

to which add a little Chalk, or half an ounce of Carbonate of Soda, for the purpose of preventing it turning acid. The time of immersion for the prints in this bath is from fifteen to twenty minutes. It will

be remarked, that when first placed in this bath, they apparently lose a portion of the colour obtained by toning: this will, however, return to them on drying. The hypo-bath, made as above, will last for some time, especially if some fresh crystals of hypo are occasionally added.

The fixing of the prints being finished, they will require that careful washing, upon the completeness of which the permanence of the prints depend. Besides a copious supply of water, and frequent changes from one dish to another, it is desirable to apply mechanical means to remove all traces of hypo from the paper, and we hope in a short time to be able to announce a contrivance of our own designed for this purpose. In the meantime, it will be found to assist the object very materially if the prints after washing for some time are "dabbed" with a sponge, or a large pad of fine cotton-wool—this being done in a dish with barely sufficient water to cover the print, changing the water once or twice. More will be accomplished by such means in five minutes, than by the mere changes of water, in the ordinary way, in six hours: in fact, there is no reason why one hour's washing, with *proper appliances*, should not be completely sufficient to insure the entire removal of every trace of the fixing bath. If convenient, dry the prints by heat.

As sensitized paper very rapidly deteriorates, even when not exposed to light, we may here mention the very useful preservative case of M. Marion, the object of which is to keep it good, if not an indefinite, at least a very long time. We have found these so successful, that they are now included in all our sets of apparatus; and they are well appreciated by those who know the advantage of possessing, when required, an undeteriorated sheet of sensitized paper.

ANTIDOTE TO THE POISONOUS EFFECTS OF CYANIDE OF POTASSIUM.

The ordinary positive developing solution, made with protosulphate of iron, is the best antidote to the poisonous effects of cyanide of potassium. If necessary, it may be taken internally, in excess, without danger (unless other substances of a deleterious nature have been added to it, such as nitrate of baryta, in excess, or perchloride of mercury), or it may be applied externally to a wound, if cyanide of potassium has got into it. The presence of a little nitric or acetic acid is of no consequence.—*Mr. Shadbolt's Journal.*

BOOKS UPON AND INSTRUCTION IN THE PRACTICE OF PHOTOGRAPHY.

There are many works on the subject of Photography it might be very desirable for the operator to make himself master of; we think however, we may venture to say that the two most important and valuable are Mr. Hardwich's and Mr. Lake Price's:—there is so much that is eminently practical in both these books, that no Photographer should be without them.

With respect to instruction in Photography, we take this opportunity to announce that Mr. VERNON HEATH will be happy to enter into arrangements with Purchasers of Apparatus, Amateurs, and others, to give instruction in the details of the Art, the aim of which will be to impart practical, in preference to scientific, knowledge of its various branches.

REGISTERED STEREOSCOPE, STEREOGRAPHS, &c.

Our IMPROVED REGISTERED STEREOSCOPE having received such high and general approval, and being honoured with the most distinguished

favour (*several having been supplied by command to Her Majesty the Queen*), is confidently submitted to the public as the most perfect yet manufactured.

It combines several optical and mechanical improvements, which experience has pointed out as necessary for the production of the true Stereoscopic picture; and altogether the utmost efforts have been made to produce an Instrument capable of worthily developing the powers and uses of Professor Wheatstone's marvellous invention.

It is not pretended that the Stereoscope is so essentially a Scientific Instrument as to limit its manufacture to those whose business it is to make Scientific Apparatus, nor is it here proposed to consider its uses as strictly and only educational; nevertheless those persons who know the Stereoscope and its results merely by their acquaintance with the ordinary instrument and the well-arranged and entertaining groups of which so many thousands have been sold, have scarcely the least notion of the effects which can be produced when a really superior Stereoscope is used in combination with the highest class of Stereographs.

It is for the purpose of exhibiting these effects that we have introduced our Registered Stereoscope; we have also, with the same object, sought out all the best Stereoscopic Artists, especially the producers of those beautiful pictures on glass which have become so famous in a historical, geographical, and artistic point of view,—pictures which, beyond all question, have established the vast utility of the invention of the Stereoscope.

The following extract from the "Times" of Friday, January 1, 1858, refers to a "series" of pictures which form a portion of Murray and Heath's collection:—

"A very beautiful, novel, and interesting series of stereoscopic views,

from negatives by Mr. Frith, illustrating the most remarkable features of ancient Egyptian architecture, has just been published. There are one hundred of them ; and they represent, with admirable faithfulness of detail, the present aspect of those stupendous temples, obelisks, and monumental remains which have for so many ages past, and will for ages to come, attract the steps of the traveller to the valley of the Nile. It is, we believe, the first serious and worthy effort that has been made to develop the educational uses of the Stereoscope ; nor can we imagine a more appropriate or acceptable gift to young people, especially during this gift-giving season of the year. Most of us have been enabled, by the labours of Roberts and other painters, to realize with some approach to accuracy what the great Egyptian monuments are like ; but the revelations of Wheatstone's marvellous invention, applied to this subject, carry us far beyond anything that it is in the power of the most accomplished artist to transfer to his canvas. You look through your Stereoscope, and straightway you stand beside the fabled Nile, watching the crocodile asleep upon its sandy shore, with the superb ruins of Philæ in the distance. The scene changes, and you are in the Desert, gazing at the half-buried and mutilated Colossi which stand before the great pylon of the temple at Luxor. In an hour the schoolboy will learn more from these views than it was possible, ten short years ago, for the most learned man to know who had not traversed the scenes depicted."

The above series, and such subjects as the glass pictures executed by Messrs. Ferrier and Soullier (whose magnificent set of Views of Rome and Switzerland have but just been issued), will command admiration, and be sought for, for educational reasons, when the taste and demand for merely "amusing subjects" has entirely passed away.

Indeed, all who appreciate the real capabilities of the Stereoscope owe their thanks to the above-named gentlemen ; for it is productions such as theirs which, to quote the *Daily News* of March 23, 1858, "will

prevent the Stereoscope becoming a mere toy, as the slides representing scenes sentimental and serious from everyday life threaten to make it."

CONCLUSION.

We cannot close this pamphlet without in the first place expressing a hope that it will be considered that we have sought with success to render it of service and value to all into whose hands it may come; and in the second, repeating our sincere thanks for the confidence which has been placed in us, adding also the assurance that our constant aim will be to continue to merit the position we have accomplished.

MURRAY & HEATH.

43, PICCADILLY, LONDON, W.

31st May, 1860.



NOTE.—MESSRS. MURRAY & HEATH *reserve the right to charge,*
at their discretion, the sum of Sixpence for this Pamphlet.

